

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference DNASOFT-09686		Date of mailing (day/month/year) 18 JUL 2005
International application No. PCT/US04/37291		International filing date (day/month/year) 08 November 2004 (08.11.2004)
International Patent Classification (IPC) or both national classification and IPC IPC(7): G06F 19/00 and US Cl.: 702/27		Priority date (day/month/year) 07 November 2003 (07.11.2003)
Applicant DNA SOFTWARE INC.		

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-8300	Authorized officer Eric S. DeJong Telephone No. (571) 272-6099
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/37291

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has:
- ☐ paid additional fees
- ☐ paid additional fees under protest
- ☒ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
- ☒ not complied with for the following reasons:
- See the lack of unity section of the International Search Report (Form PCT/ISA/210)
4. Consequently, this opinion has been established in respect of the following parts of the international application:
- ☐ all parts.
- ☒ the parts relating to claims Nos. 1, 2, 9, and 10 (Group I)

**WRITTEN OPINION OF THE
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Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1, 2, 9, and 10</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1, 2, 9, and 10</u>	NO
Industrial applicability (IA)	Claims <u>1, 2, 9, and 10</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claims 1, 2, 9, and 10 lack novelty under PCT Article 33(2) as being anticipated by Tamura et al. Tamura et al. set forth an investigation of important structural elements pertaining to "ribose zippers" included conserved hydrogen bonding patterns. The sequence and structure conservation amongst ribose zippers is put forth as important to applications of tertiary structure prediction and design. See Tamura et al., Abstract. Table 2 provides a complete listing of common secondary structure features derived from structural comparison of ribose zippers. Further, RNA structures are compared by aligning sequences in order to generate a structural comparison. See Tamura et al., Figure 9 and page 467, column 2, lines 20-41. Secondary structural constraints are employed in the computational evaluation of a pair of related RNA structures. See Tamura et al., Figure 8 and page 467, column 1, lines 10-24. Tamura et al. also provide the algorithm and computational methods used to determine RNA sequences related ribose zipper sequences which may include any of the additions, substitutions or deletions in conserved sequences. See Tamura et al., page 472, column 2, line 34 through page 473, column 1, line 21.

Claims 1, 2, 9, and 10 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.